In the Claims

What is claimed is:

1. (Currently Amended) A beam shaping filter assembly comprising:

a first moveable filter having a non-uniform thickness;

a second moveable filter independent of the first moveable filter and having a non-uniform thickness[[; and]]

———wherein at least one of the first moveable filter and the second moveable filter is configured to be placed in a high frequency electromagnetic energy beam for attenuation of the beam for radiographic data acquisition[[.]]; and

at least one motor assembly configured to independently position a moveable filter such that a beam profile is created that substantially conforms to a shape of a subject to be scanned.

2. (Original) The beam shaping filter assembly of claim 1 wherein the second moveable filter has a shape that mirrors that of the first moveable filter.

Claims 3 - 4 (Cancelled)

5. (Currently Amended) The beam shaping filter assembly of claim [[4]] 1 wherein the at least one motor assembly is further configured to dynamically position a moveable filter during CT data acquisition.

6. (Original) The beam shaping filter assembly of claim 5 wherein the at least one motor assembly is further configured to dynamically position a moveable filter during CT data acquisition based on a scout scan carried out before CT data acquisition.

7. (Original) The beam shaping filter assembly of claim 1 wherein the first moveable filter and the second moveable filter are each defined by a base, a tail, and a curved portion connecting the base to the tail.

8. (Original) The beam shaping filter assembly of claim 7 wherein the base has a thickness greater than that of the tail.

9. (Original) The beam shaping filter assembly of claim 7 wherein the base has a thickness of 30 mm and the tail has a thickness of 0.25 mm.

10. (Original) The beam shaping filter assembly of claim 7:

wherein the base of the first moveable filter has a length along an x-direction of 112 mm;

wherein the curved portion of the first moveable filter has a length along the x-direction of 24.9 mm;

wherein the tail of the first moveable filter has a length along the x-direction of 135 mm;

wherein the base of the second moveable filter has a length along the x-direction of 53 mm;

wherein the tail of the second moveable filter has a length along the x-direction of 168 mm; and

wherein the curved portion of the second moveable filter has a length along the x-direction of 34.2 mm.

11. (Original) A CT system comprising:

a rotatable gantry having an opening to receive a subject to be scanned;

a high frequency electromagnetic energy projection source configured to project a high frequency electromagnetic energy beam toward the subject;

a pre-subject filter assembly including a pair of filters;

a scintillator array having a plurality of scintillator cells wherein each cell is configured to detect high frequency electromagnetic energy passing through the subject;

a photodiode array optically coupled to the scintillator array and comprising a plurality of photodiodes configured to detect light output from a corresponding scintillator cell;

a data acquisition system (DAS) connected to the photodiode array and configured to receive the photodiode outputs;

an image reconstructor connected to the DAS and configured to reconstruct an image of the subject from the photodiode outputs received by the DAS; and

a controller configured to independently position at least one filter of the pair of filters in the high frequency electromagnetic energy beam so as to modulate the beam to have a profile that substantially matches at least an approximate shape of the subject.

12. (Original) The CT system of claim 11 further comprising a computer programmed to cause application of a scout scan of the subject and from the scout scan determine at least an approximate shape of the subject.

13. (Original) The CT system of clam 12 wherein the at least one filter is operationally connected to at least one motor that is operationally connected to the controller such that control signals transmitted to the controller by the computer cause the at least one motor to position the at least one filter in the projection path to modulate the beam to have a desired profile.

14. (Original) The CT system of claim 11 wherein one non-uniform filter has an orientation that mirrors that of another non-uniform filter.

15. (Original) The CT system of claim 11 wherein each filter is defined by a base, a tail, and a curved portion connecting the base to the tail.

16. (Original) The CT system of claim 15 wherein the base is configured to block more x-rays than that of the tail.

17. (Original) An x-ray filter assembly comprising:

a first filter and a second filter;

a first motor assembly connected to the first filter and a second motor assembly connected to the second filter; and

wherein the first and the second motor assemblies are configured to independently position a respective filter in an x-ray path to define an attenuation profile that substantially approximates a target shape.

18. (Original) The x-ray filter assembly of claim 17 wherein the first filter has a contour different than that of the second filter.

19. (Original) The x-ray filter assembly of claim 17 wherein the first and the second motor assemblies are further configured to position the first and the second filters with respect to one another such that at least a portion of the filters overlap.

20. (Currently Amended) The x-ray filter assembly of claim 17 wherein each filter is defined by a base, a curved portion, and a tail, and wherein the first and the second motor assemblies are further configured to position the first and the second filters such that the tail of the first filter is proximate to the tail of the second filter.

21. (Original) The x-ray filter assembly of claim 17 further comprising a stationary filter such that a non-zero minimum attenuation is provided when the first and the second filters are not overlapping.

22. (Original) The x-ray filter assembly of claim 17 incorporated into a CT system.

23. (Original) The x-ray filter assembly of claim 22 wherein the CT system includes a computer programmed to determine the target shape from a scout scan of a subject to be imaged.